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10/531,896

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Yasufumi Asao

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EXAMINER

JOSEPH, DENNIS P

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,896	<b>Applicant(s)</b> ASAO ET AL.	
	<b>Examiner</b> DENNIS P. JOSEPH	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :4/21/2005,6/15/2006,11/6/2006,11/27/2006,12/12/2006, and 10/19/2007.

**DETAILED ACTION**

1. This Office Action is responsive to a restriction requirement for No. 10/531,896 elected on September 8, 2008. Claims 1-10 and 21 are pending and have been examined.

***Foreign Priority***

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed.

***Information Disclosure Statements***

3. The information disclosure statements (IDS) were submitted and filed. The submissions were in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

***Restriction Requirement***

4. In a telephone interview with attorney Dan Glueck on September 8, 2008, Applicant elected with traverse, Group 1 which consisted of Claims 1-10 and 21. The restriction will be discussed in the response section below. Examiner thanks Applicant for the quick response over the telephone.

***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection

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is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. **Claim 1** rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,379,080 B2 (hereinafter referred to as 080). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patented case encompass the claim limitations of the current application.

Current Application Claim 1	Patent 080 Claim 1
A color display element comprising a unit pixel which is comprised of a plurality of sub-pixels comprising a <b>first sub-pixel and a second sub-pixel</b> having a <b>color filter</b> and a medium which has an optical property modulated in accordance with a voltage	A color display device wherein a unit pixel is constituted by a plurality of subpixels including a <b>first subpixel and a second subpixel</b> which is provided with a <b>color filter</b> , and a medium changing an optical property depending on an applied voltage <b>is disposed at</b>

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applied to each of the sub-pixels and <b>is located in each of the sub-pixels</b> , wherein	<b>each of the subpixels;</b>
the color display element has a means of applying to the <b>first sub-pixel</b> a voltage which modulates an optical property of the medium located in the first sub-pixel in a range within which a brightness of light passing through the medium is <b>variable</b> and	the color display device comprising: means for applying, to the <b>first subpixel</b> , a voltage modulating the optical property of the medium disposed at the first subpixel in a range in which a brightness of light passing through the medium is <b>changed</b> and
in a range within which a <b>chromatic color</b> assumed by light passing through the medium changes and	in a range in which the light passing through the medium assumes a <b>chromatic color</b> and a hue of the chromatic color is changed and
a means of applying to the <b>second sub-pixel</b> a voltage which modulates an optical property of the medium located in the second sub-pixel in a range within which a brightness of light passing through the medium is <b>variable</b> .	means for applying, to the <b>second subpixel</b> , a voltage modulating the optical property of the medium disposed at the second subpixel in a range in which a brightness of light passing through the medium is <b>changed</b> ;
	wherein the color display device further comprises means calculating, when display of the color display device is switched, a correction voltage of the second subpixel from a voltage applied to the first subpixel before the display is switched and a voltage applied to

	<p>the first subpixel after the display is switched, and means applying, as a voltage applied to the second subpixel, a voltage obtained by superposing the correction voltage on a voltage determined by the display at the second subpixel in a predetermined period after the voltage applied to the first subpixel is switched; and wherein the correction voltage is a voltage which modifies a color of the second subpixel so as to produce an achromatic color by mixing a chromatic color, transitionally appearing at the first subpixel when the display is switched, with the color of the second subpixel.</p>
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As can be seen from above, Claim 1 of 080 includes all of the patentably same limitations of Claim 1 of the current application, except that Claim 1 further includes a voltage correction means. The current application is the broader version and all of its claim limitations have already been patented.

The additional limitations describe how the voltage is changed to alter the chromaticity of the sub-pixels, and altering the chromaticity is also claimed in the current application.

***Claim Rejections – 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 1 and 21** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites therein “comprised of a plurality of sub-pixels comprising a first sub-pixel and a second sub-pixel having a color filter.” Respectfully, this is unclear as to whether the first sub-pixel also has a color filter or if it is just the second sub-pixel. The language is confusing in this regard. Appropriate clarification is required. Similar issues exist in Claim 21.

For purposes of examination, it will be interpreted as at least one sub-pixel in the pixel structure has a color filter.

***Claim Rejections – 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



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10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. **Claim 1** rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al ( 6,014,195 ) in view of Van Aerle et al ( US 2001/0004296 A1 )

Sakamoto teaches in Claim 1:

A color display element comprising a unit pixel which is comprised of a plurality of sub-pixels comprising a first sub-pixel and a second sub-pixel ( Column 3, Lines 24-29 disclose plates between a first and second electrode used to emit light. These are the pixel electrodes, forming sub-pixels ) and a medium which has an optical property modulated in accordance with a voltage applied to each of the sub-pixels and is located in each of the sub-pixels ( Columns 4-5, Lines 66-8 disclose applying voltages to the electrodes for color changes (gradation levels). These are applied between the plates ),

wherein, the color display element has a means of applying to the first sub-pixel a voltage which modulates an optical property of the medium located in the first sub-pixel in a range within which a brightness of light passing through the medium is variable ( Columns 4-5, Lines 66-8 disclose applying voltages to the electrodes for color changes (gradation levels). Figure 70 shows the various combinations of colors which can be applied ) and in a range within which a

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chromatic color assumed by light passing through the medium changes ( Figure 70, Column 37, Lines 16-22 ), and a means of applying to the second sub-pixel a voltage which modulates an optical property of the medium located in the second sub-pixel in a range within which a brightness of light passing through the medium is variable. ( Figure 70, Column 37, Lines 16-22, between the plates are the electrodes ); but

Sakamoto does not explicitly of the structure including a “color filter” for the pixels.

However, in the same field of endeavor, display systems with driving methods, Van Aerle teaches of using a color/retardation filter as a means to filter the light to the pixels ( Van Aerle, [0027] ). These are well known in the art and commonly used in conjunction with pixels.

Therefore, it would have been obvious to one of ordinary skill in the art to use the filter as taught by Van Aerle with Sakamoto's driving method with the motivation that that by using the filter, a black state problem is optimally corrected in a cost effective way. ( Van Aerle, [0010] )

Van Aerle teaches in Claim 2:

The color display element according to claim 1, wherein the color filter of the second sub-pixel is comprised of a green color filter. ( The specific color used for the filter is a design choice for optimal/preferred brightness adjustment. Van Aerle teaches of a green color filter in [0027] as well as portions of other colors in the filters )

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Sakamoto teaches in Claim 3:

The color display element according to claim 2 wherein the range within which the color changes is a color range of red, blue and colors between them. ( Figure 70 shows the various combination levels of RGB and in between perceived colors, Column 34, Lines 29-35 )

Sakamoto teaches in Claim 4:

The color display element according to claim 2, wherein a voltage making the light passing through the medium assume magenta intermediate between red and blue is applied to the first sub-pixel ( Figure 70, magenta has a wavelength in between red and blue ), and a voltage making the light passing through the medium has a maximum brightness in the range within which a brightness of the light is variable is applied to the second sub-pixel, whereby the unit pixel displays white color. ( Column 2, Lines 27-30 disclose a goal of the invention is to provide colorless "white" which is an extreme combination )

Van Aerle teaches in Claim 5:

The color display element according to claim 1, wherein the first sub-pixel has a color filter of a color complementary to a color of the color filter of the second sub-pixel. ( The Examiner takes Official Notice as to the use of magenta color filters, which are well known to be complementary to green color filters and are used in conjunction for good synchronization )

Van Aerle teaches in Claim 6:

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The color display element according to claim 5, wherein the color filter of the second sub-pixel assumes green, and the color filter of the first sub-pixel assumes magenta. ( The Examiner takes Official Notice as to the use of magenta color filters, which are well known to be complementary to green color filters and are used in conjunction for good synchronization )

Sakamoto and Van Aerle teach in Claim 7:

The color display element according to claim 5, wherein a voltage in the range within which the color changes is applied to the first sub-pixel, to display a color as a result of overlapping the chromatic color and a color of the complementary color filter with each other. ( Columns 4-5, Lines 66-8 disclose applying voltages to the electrodes for color changes (gradation levels). Figure 70 shows the various combinations of colors which can be applied. The combination with Van Aerle teaches to use the color filters and it is well known to have complementary filters. )

Van Aerle teaches in Claim 8:

The color display element according to claim 5, wherein a voltage making the lights passing through the mediums have a maximum brightness in the range within which a brightness of the light is variable is applied to the first and second sub-pixels, whereby the unit pixel displays white color. ( Column 2, Lines 27-30 disclose a goal of the invention is to provide colorless “white” which is an extreme combination )

Van Aerle teaches in Claim 9:

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The color display element according to claim 5, wherein modulations of a same gray level in the range within which a brightness of the light is variable are applied to the first and second sub-pixels respectively, whereby an achromatic color of half tone is displayed in the unit pixel. ( Column 5, Lines 13-29 disclose achromatic colors such as white or black which can be applied to both electrodes using variation voltages )

Sakamoto and Van Aerle teach in Claim 10:

The color display element according to claim 2, wherein the second sub-pixel is comprised of two or more of sub-pixels, at least one of which sub-pixels has a red color filter or a blue color filter. ( Examiner takes Official Notice as to the use of multiple sub-pixel structures. These are well known in the art. The particular color of the filter is a design choice. Van Aerle teaches of a green color filter in [0027] as well as portions of other colors in the filters )

12. The limitations of Claim 21 are similar to the limitations of Claim 1, so similar reasoning is applied here as well.

### ***Restriction Response***

13. Examiner thanks Applicant for the quick response over the phone. Group 1, consisting of Claims 1-10 and 21 was elected with traverse. This will be explained here.

Claims 1-10 deal with modulating the voltage through the pixels using a driving method, i.e. voltage as shown in Figures 9, 10, etc.

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Claims 11-20 deal with retardation of the LCD layer by adjusting the orientation of the layers, panels and direction as shown in Figure 11-18, etc.

These are two separate inventions using different methods and this is why the restriction is necessary in this case.

### ***Conclusions***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS P. JOSEPH whose telephone number is (571)270-1459. The examiner can normally be reached on Monday-Friday, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Amr Awad/

Supervisory Patent Examiner, Art Unit 2629